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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,044	05/11/2001	Sergey Doudnikov	CIT/K-146	5077

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EXAMINER

PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/853,044	Applicant(s) DOUDNIKOV ET AL.	
	Examiner Shefali D. Patel	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 13, 2005 has been entered.

Interview

2. In person interview was held on May 12, 2005.

Response to Amendment

3. The amendment to claims and specification filed along with RCE was received on May 13, 2005.

4. Claims 1-22 are pending in this application.

Response to Arguments

5. Applicant's arguments, see Remarks on pages 11-15, filed May 13, 2005, with respect to the rejection(s) of claim(s) 1-16, 18-23 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Holzbach (US 6,795,241).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama (US 5,917,460) in view of Holzbach (US 6,795,241).

With regard to **claim 1** Kodama discloses an apparatus for displaying a three-dimensional image, which synthesizes (*at least three*) two-dimensional microimages of a scene (the two 2D images are at 18 and 19 in Figure 2, col. 9 lines 57-64) and regenerates them in a three-dimensional image of a scene (the observer sees these two 2D images as a virtual image in 3D), the apparatus comprising: a detector (detector 20 in Fig. 2) for tracing movement of an observer head that observes the three-dimensional image, in real time and detecting a position of the observer head (tracing the movement and detecting the position on whether the observer's head is moving upwardly or downwardly with the detector 20 at col. 10 lines 1-10, 35-38); and a compensator for adjusting a viewing zone of the three-dimensional image (adjusting the view according the movement of the observer's head at col. 10 lines 55-66) (*that is synthesized from the at least three two dimensional microimages*) and/or compensating distortion of said three-dimensional image by manipulating the (*at least three*) microimages in accordance with a signal input from the detector (See, col. 10 lines 11-18). Note, Kodama in the background information discloses prior art knowledge that converts two images signal in accordance with a three-dimensional movement of the head at col. 1 line 46 to col. 2 lines 1-10. Kodama discloses this at col. 9 lines 10-15 where the user is able to view the image "virtually" which is three-dimensional.

Kodama does not expressly disclose synthesizing *at least three two dimensional microimages of a scene* to generate a three-dimensional image. Holzbach discloses synthesizing multiple images (more than two images) to obtain a three-dimensional image of the object or a scene with reference to Figures 3-8 at col. 5 lines 62 to col. 6 lines 1-11, lines 35-38 and lines 58-67, col. 7 lines 16-35. Kodama and Holzbach are combinable because they are from the same field of endeavor, i.e., processing multiple images to generate three-dimensional image. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Holzbach with Kodama. The motivation

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for doing so is present 3D information to an individual or group of observers using computer mediated 3D communications in accordance with teachings of the Holzbach invention without requiring each observer to wear special goggles or glasses (as require in Kodama) as suggested by Holzbach at col. 2 lines 44-63; and also to allow an observer to view a display from any distance without observing the anamorphic distortions, which are inherent in horizontal parallax only displays as suggested by Holzbach at col. 6 lines 64-66. Therefore, it would have been obvious to combine Holzbach with Kodama to obtain the invention as specified in claim 1.

With regard to **claim 2** Kodama discloses the detector (detector device 20 in figure 2) comprising a head tracking system (this detector traces the head movement at col. 10 lines 1-10), which traces movement of the observer head in real time, and a head position detector for calculating the position of the observer head traced by the head tracking system (See, col. 10 lines 55-66).

With regard to **claim 3** Kodama discloses the compensator comprising either a viewing adjust engine which adjusts the viewing zone of the three-dimensional image by moving the (*at least three*) microimages in accordance with a signal input from the head position detector (adjusting the view zone as seen in Figure 4, for example, from 25 to 26, at col. 10 lines 55-66), or a device which regenerates the (*at least three*) microimages of the scene in accordance with the signal input from the head position detector to compensate distortion of the three-dimensional image (a device seen in Figure 2 regenerating the images using the image signal converter 21).

With regard to **claim 4** Kodama discloses an apparatus for displaying a three-dimensional image, comprising: (*at least three*) of two-dimensional microimages of a scene (Figure 2 containing two-dimensional microimages 18 and 19); a head tracking system for tracing movement of an observer head that observes the three-dimensional image, in real time (tracking system 20 in Figure 3); a head position detector for calculating the position of the observer head traced by the head tracking system (See, col. 10 lines 1-10); and a viewing adjust engine for adjusting a viewing zone of the three-dimensional image by

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moving the (*at least three*) microimages in accordance with a signal input from the head position detector (see, col. 10 lines 55-66).

Kodama discloses microlens arrays 16 and 17 representing an image in three-dimension to an observer by using the image signal converter 21. However, Kodama does not expressly disclose microlens array for synthesizing *at least three two dimensional microimages of a scene* and regenerating them in a three-dimensional image of a scene. Holzbach discloses microlens array 34 (i.e., lenticules) on a lenticular lens sheet 32 at col. 6 lines 3-11 as seen in Figure 4. Holzbach further discloses synthesizing multiple images (more than two images) to obtain a three-dimensional image of the object or a scene with reference to Figures 3-8 at col. 5 lines 62 to col. 6 lines 1-11, lines 35-38 and lines 58-67, col. 7 lines 16-35. Kodama and Holzbach are combinable because they are from the same field of endeavor, i.e., processing multiple images to generate three-dimensional image. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Holzbach with Kodama. The motivation for doing so is present 3D information to an individual or group of observers using computer mediated 3D communications in accordance with teachings of the Holzbach invention without requiring each observer to wear special goggles or glasses (as require in Kodama) as suggested by Holzbach at col. 2 lines 44-63; and also to allow an observer to view a display from any distance without observing the anamorphic distortions, which are inherent in horizontal parallax only displays as suggested by Holzbach at col. 6 lines 64-66. Therefore, it would have been obvious to combine Holzbach with Kodama to obtain the invention as specified in claim 1.

With regard to **claim 5** Kodama discloses a device, which regenerates the (*at least three*) microimages of the scene in accordance with the signal input from the head position detector to compensate distortion of the three-dimensional image (a device as seen in Figure 2 regenerating the images using the image signal converter 21).

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With regard to **claim 6** Kodama discloses the apparatus of claim 5, wherein the regenerated microimages are movable by the viewing adjust engine to form a new viewing zone centered relative to the moved observer head (See, col. 11 lines 34-55).

With regard to **claim 7**, Kodama discloses all of the claimed subject matter as already discussed above in claims 1 and 4 and the arguments are not repeated herein, but are incorporated by reference. Claim 7 distinguishes from claim 4 only in that it recites an a device for regenerating the microimages in accordance with a signal input from the head position detector to compensate distortion of the three-dimensional image. Kodama discloses a device as seen in Figure 2 regenerating the images using the image signal converter 21.

Claim 8 recites identical features as claim 6. Thus, arguments similar to that presented above for claim 6 is equally applicable to claim 8.

Claim 9 recites identical features as claim 1 except claim 9 is a method claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 9.

Claim 10 recites identical features as claim 6 except claim 10 is a method claim. Thus, arguments similar to that presented above for claim 6 is equally applicable to claim 10.

With regard to **claim 11** Kodama discloses compensating distortion of the three-dimensional image as discussed above comprising regenerating the (*at least three*) two-dimensional microimages of the scene (every time the observer moves his/her head as seen in Figure 5 the two dimensional images 18 and 19 are being regenerated, having a respective center, before image signal converter displays to the observer in three-dimension).

With regard to **claim 12** Kodama in view of Holzbach discloses a system for displaying a three-dimensional image of a scene that is generated via (*at least three*) two-dimensional images of the scene as disclosed above in claims 1, 4, 7, and 9 and the arguments are not repeated herein, but are incorporated by reference.

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Claim 13 recites identical features as claim 2. Thus, arguments similar to that presented above for claim 2 is equally applicable to claim 13.

With regard to **claim 14** Kodama discloses a viewing adjust engine that adjusts the viewing zone of the three-dimensional image by moving the (*at least three*) two-dimensional images of the scene based on the position signal (adjusting the view zone as seen in Figure 4, for example, from 25 to 26, at col. 10 lines 55-66),

With regard to **claim 15** Kodama discloses a device that compensates for distortion by regenerating the (*at least three*) two-dimensional images of the scene based on the position signal (a device as seen in Figure 2 regenerating the images using the image signal converter 21, See, col. 10 lines 11-18).

Claim 16 recites identical features as claims 14-15. Thus, arguments similar to that presented above for claims 14-15 are equally applicable to claim 16.

With regard to **claim 17** Kodama discloses the detector detecting the position of the observer by tracking the observer's head (tracing the movement and detecting the position on whether the observer's head is moving upwardly or downwardly with the detector 20 at col. 10 lines 1-10, 35-38).

With regard to **claim 18** Kodama discloses a method of manipulating a three-dimensional image of a scene that is generated via (*at least three*) two-dimensional images of the scene (col. 9 lines 57-67), comprising: determining a position of an observer of the three-dimensional image (col. 10 lines 1-18); and manipulating the two-dimensional images of the scene based on the determined position of the observer (see, col. 10 lines 55-66, col. 12 lines 41-52).

Claim 19 recites identical features as claim 17. Thus, arguments similar to that presented above for claim 17 is equally applicable to claim 19.

Claim 20 recites identical features as claim 14. Thus, arguments similar to that presented above for claim 14 is equally applicable to claim 20.

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Claim 21 recites identical features as claim 15. Thus, arguments similar to that presented above for claim 15 is equally applicable to claim 21.

Claim 22 recites identical features as claims 20-21. Thus, arguments similar to that presented above for claims 20-21 are equally applicable to claim 22.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
US 6,329,963 – Three-Dimensional display system: apparatus and method.

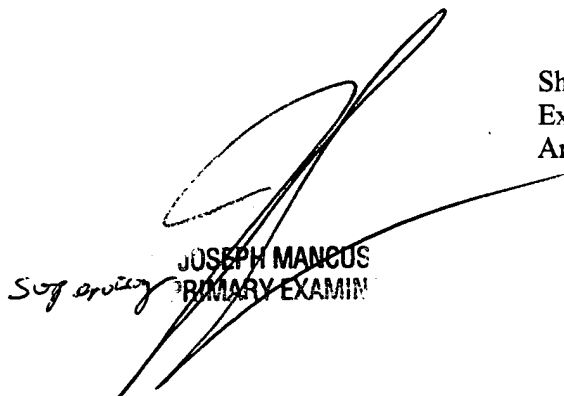
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel
Examiner
Art Unit 2621

June 8, 2005


JOSEPH MANCUSO
PRIMARY EXAMINER